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10/799,785	03/12/2004	Dipl.-Ing. Karl Schrodinger	16274.181	8312

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EXAMINER	
LIU, LI	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/799,785	SCHRODINGER, DIPL.-ING. KARL	
	Examiner	Art Unit	
	Li Liu	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 July 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3, 7 and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geller (US 5,202,553) in view of Robinson et al (US 2002/0135845).

1). With regard to claim 1, Geller discloses a receiver circuit, comprising:

an optical receiving device (photodiode 12 in Figure 4),

a plurality of amplifiers (the amplifiers 16 and 24 in Figure 4) which are connected to the receiving device, and

circuit means (switches 18, 22 and 28 in Figure 4, and Figure 5) for individually activating and deactivating the individual amplifiers (column 3, line 52-66);

a detecting circuit (sense resistor 32, capacitor 34 and comparator 36 in Figure 4) for detecting the level of a signal which has been detected by the optical receiving device; and

one or more control lines connecting the detecting circuit with the circuit means for individually activating and deactivating the individual amplifiers (column 3, line 54-66, the comparator 36 provides a control output 38 which operates the switches 18, 22 and 28 to switch the front end 10 from the one mode to another mode; Figure 5 shows several control lines connecting the detecting circuit 32, 34 and 36 with the circuit means 18 and 22);

wherein the detecting circuit (sense resistor 32, capacitor 34 and comparator 36 in Figure 4) is configured to provide control signals (the control signals is output from the comparator 38) to the circuit means (switches 18, 22 and 28 in Figure 4, and Figure 5) via the one or more control lines for activating the one of the plurality of amplifiers most suited to amplify the incoming signal detected by the detecting circuit;

wherein the amplifiers each differ from one another in at least one parameter (each amplifier has different gain and gain saturation, column 1 line 25-31, column 2 line 58-60 and column 3 line 27-47) , and

wherein only one amplifier is activated at a given point in time and the other amplifiers are deactivated (the comparator generates a control signal to switch between the first and second switchable transimpedance amplifiers, column 2, line 47-49, and column 3 line 58-66).

But, Geller discloses that the control circuit is configured to selectively activate one of the amplifiers based on the signal level of the optical input signal. Geller does not expressly disclose a detecting circuit for detecting the **bandwidth** of a signal; wherein the detecting circuit is configured to provide control signals to the circuit means via the

one or more control lines for activating the one of the plurality of amplifiers most suited to amplify the **bandwidth** detected by the detecting circuit.

However, Robinson et al, in the same field of endeavor, discloses a receiver system in which the switching of the amplifiers is based on the **data rate** or bandwidth control signal (Figures 3 and 4, page 1 [0006], page 2-3, [0022]-[0023]). Robinson et al provide a fiber optic receiver that accommodates multiple data rates ([0010].

Robinson et al a teaches a detecting circuit for detecting the bandwidth of a signal which has been detected by the optical receiving device (page 2, [0019], a PLL loop or "other techniques in the clock and data recovery circuit" is used to detect the data rate); and one or more control lines connecting the detecting circuit with the circuit means for individually activating and deactivating the individual amplifiers (Figures 3 and 4 show that control lines); wherein the detecting circuit is configured to provide control signals to the circuit means via the one or more control lines for activating the one of the plurality of amplifiers most suited to amplify the bandwidth detected by the detecting circuit (Figures 3 and 4, [0022] and [0023]).

Robinson et al provides a fiber optic receiver that accommodates multiple data rates while conforming to existing receiver optical sub-assembly size and pin count constraints. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply switching based on the data rate as taught by Robinson et al to the system of Geller so that the multiple data rates of the optical incoming signal can be processed by the receiver, and the receiver system can be made more flexible.

2). With regard to claim 3, Geller and Robinson et al disclose all of the subject matter as applied to claim 1 above, and Geller further discloses wherein the amplifiers each have an input connected to the receiving device and an output (each amplifier 16 and 24 has input and output, e.g., the amplifier 16 has a input connected to switch 18 and connected to PD 12 through amplifier 14, the output of amplifier 16 is connected to another amplifier 30), and wherein the circuit means (the switches 18, 22 and 28 in Figure 4) switch the input on or off for the purpose of individually activating and deactivating the individual amplifiers.

3). With regard to claim 7, Geller and Robinson et al disclose all of the subject matter as applied to claim 1 above, and Geller further discloses wherein the amplifiers each comprise a transimpedance amplifier (Figure 5, column 2 line 40).

4). With regard to claim 10, Geller and Robinson et al disclose all of the subject matter as applied to claim 1 above, and Geller further wherein the individual amplifiers are connected in parallel with one another (amplifier 16 and amplifier 24 are in parallel with each other in Figure 4).

5). With regard to claim 11, Geller and Robinson et al disclose all of the subject matter as applied to claim 1 above, and Geller further wherein the one parameter in which the individual amplifiers differ is the gain (column 2, line 58-60, one amplifier is capable of operating in low gain, another is in high gain).

6). With regard to claim 12, Geller and Robinson et al disclose all of the subject matter as applied to claim 1 above, and Geller further discloses wherein the circuit

means comprise a plurality of switches that are set individually (the switches 18, 22 and 28 is operated by comparator 36, column 2, line 47-49, and column 3 line 58-66).

7). With regard to claim 13, Geller and Robinson et al disclose all of the subject matter as applied to claim s 1 and 12 above. But Geller does not expressly disclose wherein the individual switches comprise **MOS** transistors.

Although Geller doesn't specifically disclose the MOS transistors, such limitation is merely a matter of design choice and would have been obvious in the system of Geller. Geller teaches that transistors are used as the switches (Figure 5, column 4, line 9-15, line 19-26). The limitations in claim 13 do not define a patentably distinct invention over that in Geller since both the invention as a whole and Geller are directed to use transistors as the switches. Therefore, to use a MOS transistors or other kind of transistors would have been a matter of obvious design choice to one of ordinary skill in the art.

8). With regard to claim 14, Geller and Robinson et al disclose all of the subject matter as applied to claim 1 above, and Geller further discloses wherein the circuit means is adjusted via at least one control line (the output 38 from comparator 36 in Figures 4 and 5).

9). With regard to claim 15, Geller and Robinson et al disclose all of the subject matter as applied to claim 1 above, and Geller further discloses wherein the receiving device comprises a photodiode (the photodiode 12 in Figure 4).

4. Claims 2, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geller (US 5,202,553) and Robinson et al (US 2002/0135845) as applied to claim 1 above, and in further view of Bayart (US 6,069,731).

1). With regard to claim 2, Geller and Robinson et al disclose all of the subject matter as applied to claim 1 above. And Geller further discloses wherein the amplifiers each have a connection for providing a supply voltage (Figure 5). But Geller does not expressly disclose that the circuit means switch the supply voltage on or off for the purpose of individually activating and deactivating the individual amplifiers.

However, Bayart, in the same field of endeavor, discloses a circuit means switch the supply voltage on or off for the purpose of individually activating and deactivating the individual amplifiers (Figure 7, the device CA control the energy supply to amplifiers G1, ... Gm, in accordance with gain control word so that the amplifier G_i is the only one operating if the word G has the value i, column 3 line 1-3, and column 6 line 45-53).

Since only one amplifier is working at a given time point, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the system or method of supplying power to only one of the fixed gain amplifiers as taught by Bayart to the system of Geller and Robinson et al so that the power consumption and system cost can be reduced.

2). With regard to claim 4, Geller and Robinson et al disclose all of the subject matter as applied to claim 1 above. And Geller further discloses wherein the amplifiers each have an input connected to the receiving device and an output (each amplifier 16 and 24 has input and output, e.g., the amplifier 16 has a input connected to switch 18

and connected to PD 12 through amplifier 14, the output of amplifier 16 is connected to another amplifier 30).

But, Geller does not disclose wherein the circuit means switch the output on or off for the purpose of individually activating and deactivating the individual amplifiers.

However, Bayart, in the same field of endeavor, discloses a circuit means switch the output on or off for the purpose of individually activating and deactivating the individual amplifiers (Figure 4, switch SW2, each amplifier G1, .. Gm has an input connected to and output of the first switch SW1 and has an output connected to an input of the second switch SW2, the structure of the switch SW2 is such that the inputs $E_1, E_2, \ldots, E_m$ are connected to output SC when the control signal binary word G takes the respective values 1, 2, . . . , m, column 2, line 51-55, and column 5, line 17-29).

By the switches at the output of the amplifiers, one more freedom of controlling of the amplifier system can be obtained. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the switches at the output of the amplifiers as taught by Bayart to the system of Geller and Robinson et al so that the a better control of different amplifier output can be obtained and also any possible interference from other amplifiers can be removed.

3). With regard to claim 5, Geller and Robinson et al disclose all of the subject matter as applied to claim 1 above. And Geller further discloses wherein wherein the amplifiers each have a current source (Figure 5). But Geller does not disclose wherein the circuit means switch the current source on or off for the purpose of individually activating and deactivating the individual amplifiers.

However, Bayart, in the same field of endeavor, discloses a circuit means switch the current source on or off for the purpose of individually activating and deactivating the individual amplifiers (Figure 7, the device CA control the energy supply to amplifiers G1, ... Gm, in accordance with gain control word so that the amplifier G_i is the only on operating if the word G has the value I, column 3 line 1-3, and column 6 line 45-53).

Since only one amplifier is working at a given time point, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the system or method of supplying power to only one of the fixed gain amplifiers as taught by Bayart to the system of Geller and Robinson et al so that the power consumption and system cost can be reduced.

5. Claims 8, 9 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geller (US 5,202,553) and Robinson et al (US 2002/0135845) as applied to claim 1 above, and in further view of Schild et al (Schild: "Amplifier Array for 12 Parallel 10 Gb/s Optical-Fiber Links Fabricated in a SiGe Production Technology", IEEE Radio Frequency Integrated Circuit Symposium, 2002, page 89-92).

1). With regard to claims 8 and 9, Geller and Robinson et al disclose all of the subject matter as applied to claim 1 above.

But Geller does not disclose wherein the amplifiers each comprise at least two amplifier cells that are connected in series (claim 8); wherein at least the first of the amplifier cells, that is connected to the receiving device comprises a transimpedance amplifier (claim 9).

However, Schild et al discloses an amplifier that comprises at least two amplifier cells that are connected in series (Figures 2, amplifiers 1, 2 and 3 are connected in series). And the first of the amplifier cells, that is connected to the receiving device comprises a transimpedance amplifier (Figure 3). Schild et al provides the amplifier array with high-gain, high input-sensitivity and wide input dynamic range, low power consumption etc. (page 89, ABSTRACT).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the amplifier array as taught by Schild to the system of Geller so that the power consumption can be reduced and the gain and input-sensitivity can be improved.

2). With regard to claims 16, Geller and Robinson et al disclose all of the subject matter as applied to claim 1 above.

But Geller does not disclose wherein the individual amplifiers are monolithically integrated in a common chip.

However, Schild et al discloses an amplifier array wherein the individual amplifiers are monolithically integrated in a common chip (Figure 1). Schild et al provides the amplifier array with high-gain, high input-sensitivity and wide input dynamic range, low power consumption etc. (page 89, ABSTRACT).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the amplifiers integrated in a common chip as taught by Schild to the system of Geller so that the power consumption can be reduced and the gain and input-sensitivity can be improved.

6. Claims 17, 18, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geller (US 5,202,553) in view of Robinson et al (US 2002/0135845) and Schild et al (Schild: "Amplifier Array for 12 Parallel 10 Gb/s Optical-Fiber Links Fabricated in a SiGe Production Technology", IEEE Radio Frequency Integrated Circuit Symposium, 2002, page 89-92).

1). With regard to claim 17, Geller discloses an optical receiver, comprising:

an optical receiving element (the photodiode 12 in Figure 4) operable to generate an electrical output signal in response to an optical input signal;

a plurality of amplifiers (the amplifiers 14, 16 and 24 in Figure 4) having inputs coupled to an output of the optical receiving element, wherein the amplifiers each have a unique gain characteristic associated therewith (each amplifier has different gain and gain saturation, column 1 line 25-31, column 2 line 58-60 and column 3 line 27-47), wherein the plurality of amplifiers (14, 16 and 24 in Figure 4) include a separated input amplifier stage (buffer amplifier 14 in Figure 4) and an output amplifier stages (16 and 24 in Figure 4) wherein the input amplifier stage (14 in Figure 4) of the plurality of amplifiers is coupled to the output of the optical receiving element (12 in Figure 4);

a control circuit configured to selectively activate one of the plurality of amplifiers (the comparator generates a control signal to switch between the first and second switchable transimpedance amplifiers, column 2, line 47-49, and column 3 line 58-66).

But, in Figure 4, Geller discloses a shared input amplifier stage (14 in Figure 4); and the control circuit is configured to selectively activate one of the amplifiers based on the signal level of the optical input signal. Geller does not teach (A) a **separated** input

amplifier stage; and (B) the control circuit is not configured to selectively activate one of the amplifiers based on the **data rate**.

With regard to item (A), however, Robinson et al teaches a separated input amplifier stage (the input gain buffer amplifiers 74 and 76 in Figures 3 and 4). And another prior art, Schild et al, discloses an amplifier row that comprises amplifier cells connected in series (Figures 2, amplifiers 1, 2 and 3 are connected in series). And the first of the amplifier cells, which is connected to the receiving device, comprises a transimpedance amplifier (Figures 3 and 4).

Robinson et al provides a fiber optic receiver that accommodates multiple data rates while conforming to existing receiver optical sub-assembly size and pin count constraints. Schild et al provides the amplifier array with high-gain, high input-sensitivity and wide input dynamic range, low power consumption etc. (page 89, ABSTRACT).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the amplifier array as taught by Robinson et al and Schild to the system of Geller so that the power consumption can be reduced and the gain and input-sensitivity can be improved.

With regard to item (B), However, Robinson et al discloses a receiver system in which the switching of the amplifiers is based on the **data rate** control signal (Figures 3 and 4, page 1 [0006], page 2-3, [0022]-[0023]). Robinson et al provide a fiber optic receiver that accommodates multiple data rates ([0010]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply switching based on the data rate as taught by

Robinson et al to the system of Geller so that the multiple data rates of the optical incoming signal can be processed by the receiver, and the receiver system can be made more flexible.

2). With regard to claim 18, Geller in view of Robinson et al and Schild et al disclose all of the subject matter as applied to claim 17 above. And Geller further discloses wherein the plurality of amplifiers are coupled together in parallel (amplifier 16 and amplifier 24 are in parallel with each other in Figures 4 and 5), and wherein the control circuit selectively activates one of the plurality of amplifiers via one or more switches (the comparator generates a control signal to switch between the first and second switchable transimpedance amplifiers via switches 18, 22 and 28, Figures 4 and 5, column 2, line 47-49, and column 3 line 58-66).

3). With regard to claim 20, Geller in view of Robinson et al and Schild et al disclose all of the subject matter as applied to claim 17 above. And Geller and Schild et al further disclose wherein the input amplifier stage is a transimpedance amplifier (Geller: column 3 line 23-33; and Schild: Figures 2 and 3) and each output stage is one or more differential amplifiers (Schild: Figures 2 and 3).

4). With regard to claim 21, Geller in view of Robinson et al and Schild et al disclose all of the subject matter as applied to claim 17 above. And Geller in view of Robinson et al and Schild further disclose wherein each input amplifier stage and each output amplifier stage comprising one of the plurality of amplifiers has a different gain characteristic associated therewith than the gain characteristic associated with the other input amplifier stages and output amplifier stages of the optical receiver (Geller: each

amplifier has different gain and gain saturation, column 1 line 25-31, column 2 line 58-60 and column 3 line 27-47; or Robinson: [0022] and [0023], Figures 3 and 4).

7. Claims 6 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geller (US 5,202,553) and Robinson et al (US 2002/0135845) and Schild et al (Schild: "Amplifier Array for 12 Parallel 10 Gb/s Optical-Fiber Links Fabricated in a SiGe Production Technology", IEEE Radio Frequency Integrated Circuit Symposium, 2002, page 89-92) as applied to claims 1, 17 and 18 above, and in further view of Bayart (US 6,069,731).

1). With regard to claim 6, Geller and Robinson et al discloses all of the subject matter as applied to claim 1 above. But Geller does not disclose wherein each amplifier has a plurality of current sources, and all the current sources in an amplifier are switched on or off.

However, Schild et al discloses an amplifier that has plurality of current sources (Figures 2 and 3). Schild et al provides the amplifier with high-gain, high input-sensitivity and wide input dynamic range, low power consumption etc. (page 89, ABSTRACT).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the amplifier as taught by Schild to the system of Geller so that the power consumption can be reduced and the gain and input-sensitivity can be improved.

Also, Bayart, in the same field of endeavor, discloses a circuit means switch the supply voltage on or off for the purpose of individually activating and deactivating the individual amplifiers (Figure 7, the device CA control the energy supply to amplifiers G1,

... Gm, in accordance with gain control word so that the amplifier G_i is the only on operating if the word G has the value I, column 3 line 1-3, and column 6 line 45-53).

Since only one amplifier is working at a given time point, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the system or method of supplying power to only one of the fixed gain amplifiers as taught by Bayart to the system of Geller and Robinson et al and Schild et al so that all the current sources in an amplifier array are switched on or off, and the power consumption and system cost can be reduced.

2) With regard to claim 19, Geller and Robinson et al and Schild et al disclose all of the subject matter as applied to claims 17 and 18 above. And Geller further discloses wherein the one or more switches (the switches 18, 22 and 28 in Figures 4 and 5) comprise switches coupled between an input of the amplifiers and the output of the optical receiving element (each amplifier 16 and 24 has input and output, e.g., the amplifier 16 has a input connected to switch 18 and connected to PD 12 through amplifier 14). And Robinson et al also discloses the amplifier circuit comprises a switch for setting a bandwidth response of the post-amplifier circuit in response to a received data rate control signal.

But Geller and Robinson and Schild et al do not expressly disclose switches coupled between an output of the amplifiers and an output of the optical receiver, or switches coupled between a power supply and the amplifiers.

However, Bayart, in the same field of endeavor, discloses switches coupled between an output of the amplifiers and an output of the optical receiver (Figure 4,

switch SW2, each amplifier G1, .. Gm has an input connected to and output of the first switch SW1 and has an output connected to an input of the second switch SW2, the structure of of the switch SW2 is such that the inputs E_1, E_2, . . . , E_m are connected to output SC when the control signal binary word G takes the respective values 1, 2, . . . , m, column 2, line 51-55, and column 5, line 17-29). Bayart also discloses a switch circuit coupled between a power supply and the amplifiers (Figure 7, the device CA control the energy supply to amplifiers G1, ... Gm, in accordance with gain control word so that the amplifier G_i is the only on operating if the word G has the value i, column 3 line 1-3, and column 6 line 45-53).

By the switches at the output of the amplifiers or for power supplying, one more freedom of controlling of the amplifier system can be obtained. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the switches at the output of the amplifiers as taught by Bayart to the system of Geller and Robinson and Schild et al so that the a better control of different amplifier output can be obtained, the power consumption and system cost can be reduced and also any possible interference from other amplifiers can be removed.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Davidson (US 7,092,644).

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li Liu whose telephone number is (571)270-1084. The examiner can normally be reached on Mon-Fri, 8:00 am - 5:30 pm, alternating Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Li Liu
September 20, 2007

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER